REMARKS

The instant Application was filed on October 14, 2003 and contained claims 1-25. In response to a previous Office Action, Applicants amended claim 1 and canceled non-elected claims 14-25. In the most recent Office action, claims 1-13 were rejected under 35 U.S.C. 103(a). Applicants contend that, in view of the discussion set forth herein below, all the Office's rejections are untenable. Accordingly, Applicants respectfully request withdrawal of the pending rejections and allowance of the application.

The Office Action

The Office has rejected claims 1-4, 6, 7 and 11 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,534,033 ('033) to Amendola in view of U.S. Patent No. 4,696,806 ('806) to Peterson, et al.

The Office has also rejected claims 5 and 13 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,534,033 ('033) to Amendola in view of U.S. Patent No. 4,696,806 ('806) to Peterson, et al. and U.S. Patent No. 5,228,529 ('529) to Rosner.

Further, the Office has rejected claims 8-10 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,534,033 ('033) to Amendola in view of U.S. Patent No. 4,696,806 ('806) to Peterson, et al. and U.S. Patent No. 5,277,999 ('999) to Ovshinsky, et al.

Finally, the Office has rejected claim 12 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,534,033 ('033) to Amendola in view of U.S. Patent No. 4,696,806 ('806) to Peterson, et al. and U.S. Patent No. 5,690,902 ('902) tp Werth.

PAGE 3/8 * RCVD AT 4/13/2007 1:37:01 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/14 * DNIS:2738300 * CSID:2488442273 * DURATION (mm-ss):02-20

The Rejections Under 35 U.S.C. §103(a)

For the reasons which follow hereinafter, all of the rejections under 35 U.S.C. §103(a) are respectfully traversed and should be withdrawn.

The Office suggests that the base invention of the instant patent application(i.e. claim 1) is obvious given the teachings of the '033 reference in view of the '806 reference. However, an analysis of the teachings of the two references shows that even if one were to combine the teachings of these references, one of ordinary skill in the art would not have arrived at the instantly claimed invention.

Turning first to the '033 reference, there is taught a reactor and method for forming hydrogen by reacting chemical metal hydride with water to form hydrogen. The aqueous slurry or solution of the chemical metal hydride is passed from a first holding tank 30 to a reaction tank 70, in which a catalyst 80 is disposed. The catalyst 80 catalyzes the reaction of the chemical hydride and water, thus producing hydrogen in the second tank 70. The hydrogen can be stored in the reactor itself in gaseous phase or store in a gaseous phase in a separate storage tank.

Turning now to the '806 reference, there is taught a hydrogen gas purification technique in which an impure gas feed stream such as a catalytic reformer off gas or a refinery off gas which contains hydrogen (along with other gases such as CO, CO_2, CH_4, etc.) is absorbed and desorbed using a series of hydrogen storage alloy beds. The hydrogen is thus separated from the impurities by the use of hydrogen storage alloy tanks.

The Office suggests that the ordinarily skilled artisan would have used the teachings of the '806 patent to clean the impurities out of the hydrogen stream produced by the process/apparatus of the '033 reference. Unfortunately, this ignores the fact that the

PAGE 4/8 * RCVD AT 4/13/2007 1:37:01 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/14 * DNIS:2738300 * CSID:2488442273 * DURATION (mm-ss):02-20

process/apparatus of the '033 reference produces pure hydrogen gas. That is, the reaction which occurs, (i.e. $BH_4^- + 2H_2O \rightarrow BO_2^- + 4H_2$) does not produce any gaseous impuritles. Therefore, one would not have looked to the '806 reference in an attempt to purify the hydrogen stream of the '033 reference because it is already in a pure form when created.

The Office further states in its rebuttal of Applicant's previous arguments that 1) the apparatus of the '033 reference stores hydrogen, 2) the metal hydride beds of the '806 apparatus store hydrogen, 3) thus substitution of any known storage means for the one in the '033 reference is obvious. This ignores a multitude of considerations. First, it is not at all clear that any method of storing hydrogen will work. Specifically methods such as cryogenic liquid storage and carbon nano-tube storage. However, even if we look at the metal hydride storage bed technique of the '806 reference alone, it is not at all clear that this technique would have a reasonable expectation of success if used in the manner of the present invention, given the teachings of the cited references. It is not at all clear that the materials used to store the gaseous hydrogen in the '806 reference would be stable in the liquid environment of the '033 reference. The materials must be stable in the liquid environment because the metal bed used as the hydride storage bed not only stores the hydrogen produced by the reactor, but also acts as the catalyst for the hydrogen generation reaction. Therefore, the material must not only be capable of storing hydrogen, but must be catalytic to the hydrogen production reaction and chemically/mechanically stable in the caustic aqueous environment of the hydrogen reactor. Neither the '033 reference nor the '806 reference teach or suggest that there would be a reasonable expectation of success if the gas phase storage materials of the '806 reference were used

PAGE 5/8 * RCVD AT 4/13/2007 1:37:01 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/14 * DNIS:2738300 * CSID:2488442273 * DURATION (mm-ss):02-20

as both a catalyst and a storage material within the liquid environment of a system such as the '033 method/apparatus.

Finally, the '033 reference specifically rejects the use of metal hydride storage of hydrogen, stating at column 1, lines 45-54 that:

> Other methods of hydrogen storage include the use of chemical compounds that . . . (ii) reversibly adsorb and then release the hydrogen. However, these methods and compounds suffer from many deficiencies, which make them unsuitable for use in consumer applications.

The '033 reference is an attempt to avoid the storage of hydrogen in metal hydrides and to reincorporate such a storage technique in the teachings of the '033 reference specifically defeats the intended benefit of the method/apparatus thereof.

Thus there is no suggestion or teaching in any of the cited references which makes the present invention obvious, and in fact there is specific teaching in the '033 reference which negates the combination thereof with the teachings of the '806 reference. Thus the present obviousness rejections (which are all based on the combination of the '033 and '806 reference) are untenable and should be withdrawn.

Conclusion

Claims 1-13 remain at issue. In view of the discussion presented herein above, Applicants submit that the present application in condition for allowance. The Examiner is respectfully requested to pass the application to issuance.

PAGE 6/8 * RCVD AT 4/13/2007 1:37:01 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/14 * DNIS:2738300 * CSID:2488442273 * DURATION (mm-ss):02-20

Should the Examiner have any comments or suggestions which would place the instant application in better condition for allowance, Applicants earnestly request the Examiner to contact the undersigned.

Respectfully submitted,

David W. Schumaker
Reg. No 35,017

Date:April 13, 2007

Energy Conversion Devices, Inc
2956 Waterview
Rochester Hills, MI 48309
Phone: (248) 299-6047
Fax: (248) 844-2273
e-mail schumaker@ovonic.com

PAGE 7/8 * RCVD AT 4/13/2007 1:37:01 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/14 * DNIS:2738300 * CSID:2488442273 * DURATION (mm-ss):02-20